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REPORT

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INFORMATION FROM "INTRODUCTION
TO THE THEORY OF OSCILLATIONS" BY S. P. STRELKOV

This book, Introduction to the Theory of Oscillations, has been authorized by the Ministry of Higher Education as a textbook for use in higher institutes. Given below are the author's foreword, table of contents, bibliography, and a list of Russian and foreign scientists who, according to the author, played a major role in the development of this branch of science. The author states that Van der Pol and others of the "imperialistic" countries have introduced nothing that has not already been done by Soviet scientists.

AUTHOR'S FOREWORD

The main part of this book represents lectures given by the author in 1944-1949 in a general course on the theory of oscillations at the Physics Faculty of the Moscow Order of Lenin State University imeni M. V. Lomonosov. The aim of this course is to acquaint students, by concrete examples, with the basic laws of oscillatory processes, that appear most frequently in engineering and physics and to teach them elementary methods for investigating and calculating theoretically the most simple oscillatory systems.

The choice of material and the character of exposition of the basic theoretical problems were determined by scientific traditions handed down by the Chair of Oscillations of the Physics Faculty during the 20 years courses on this subject were taught. The first courses were given by Academician L. I. Mandel'shtam in Moscow University. In the development of the courses, the author relied upon the advice of his colleagues in the Chair, especially Professors K. F. Teodorichik and V. V. Migulin, and G. A. Berdrikov and N. K. Mikheyeva.

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BIBLIOGRAPHY

1. A. A. Andronov and S. E. Khaykin. Teoriya Kolebaniy (Theory of Oscillations), GTTI (State Technical Theoretical Publishers), 1936.
2. B. P. Aseyev. Osnovy Radiotekhniki (Fundamentals of Radio Engineering), Svyaz' izdat (Communications Press), 1947.
3. A. A. Krylov. O Nekotorykh Differentsial'nykh Uravneniyakh Matematicheskoy Fiziki, Imeyushchikh Prilozheniya v Tekhnicheskikh Voprosakh (On Certain Differential Equations of Mathematical Physics Possessing Applications in Technical Problems), Akademkniga (Academic Book Press), 1949.
4. A. N. Krylov. Vibratsii Sudov (Vibrations of Ships), ONTI (Unified Scientific Technical Press), 1936.
5. K. F. Teodorichik. Avtokolebatel'nyye Systemy (Self-Excited Systems), GTTI, 1948.
6. N. M. Krylov and N. N. Bogolyubov. Novyye Metody Nelineynoy Mekhaniki (New Methods of Nonlinear Mechanics), GTTI, 1934.
7. B. V. Bulgakov. Kolebaniya (Oscillations), Vol I, GTTI, 1949.
8. S. P. Timoshenko. Teoriya Kolebaniy v Inzhenernom Dele (Theory of Oscillations in Engineering), GTTI (State Scientific Technical Press), 1932.
9. Rayleigh. Theory of Sound, Vol I and II, published in Russian by GTTI, 1940.
10. Den Hartog, Theory of Oscillations, published in Russian by GTTI, 1942.

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FOREMOST SCIENTISTS IN DEVELOPMENT OF THEORY OF OSCILLATIONS

- A. S. Popov, discoverer of radio
- B. B. Golitsyn, Academician, author of Seismometry
- A. N. Krylov, Academician
- M. A. Bonch-Bruyevich, professor, commissioned by Lenin to investigate radio;
inventor of "quasi-linear methods" in calculation of nonlinear radio systems
- A. I. Berg, Academician
- M. V. Shaleykin, Academician
- I. G. Klyatskin, studied radio modulation
- A. A. Mints, studied radio modulation
- B. P. Aseyev, professor, studied radio modulation
- L. I. Mandelshtam, 20 years ago, gave the first course, in the Physicomathematical
Faculty, on the theory of oscillations and organized this specialty and a lab-
oratory for its study
- N. D. Papaleksi, coworker with Mandelshtam
- A. A. Andronov, winner of Stalin Prize for Automatic Regulation
- A. M. Lyapunov (Liapounoff)
- A. Poincare, French mathematician
- S. E. Khaykin, coauthor with A. A. Andronov of Theory of Oscillations (1937)
- A. A. Witt
- G. S. Gorelik
- S. M. Rytov
- V. V. Migulin
- N. M. Krylov, Academician (1928 - 1934), in Kiev
- N. N. Bogolyubov, professor, (1928 - 1934), in Kiev, coauthor with Krylov of
New Methods of Nonlinear Mechanics (1934)
- Yu. B. Kobzarev, coworker of Bonch-Bruyevich
- K. F. Teodorichik, inventor of "energetic methods" in nonlinear mechanics,
author of Auto-Oscillatory Systems (1945)
- B. V. Bulgakov, at present is perfecting methods of analysis for self-excited
systems
- Van der Pol

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